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U S WEST

Glenn Brown
Executive Director-
Public Policy

EX PARTE

December 22, 1997

Ms. Magalie Roman Salas, Secretary
Federal Communications Commission
1919 M Street, NW, Room 222, SC-1170
Washington, DC 20554

RE: CC Dockets Number 96-45 and 97-160

Dear Ms. Roman Salas:

On December 11, 1997, BellSouth, Sprint and U S WEST filed the Benchmark Cost Proxy Model Version 3 (BCPM3). The attached pages should be inserted in the filing document as indicated on the divider sheets. With the exception of Appendix C of the Model Methodology under Tab 5 (which was inadvertently omitted in the original filing) these changes are mostly cosmetic.

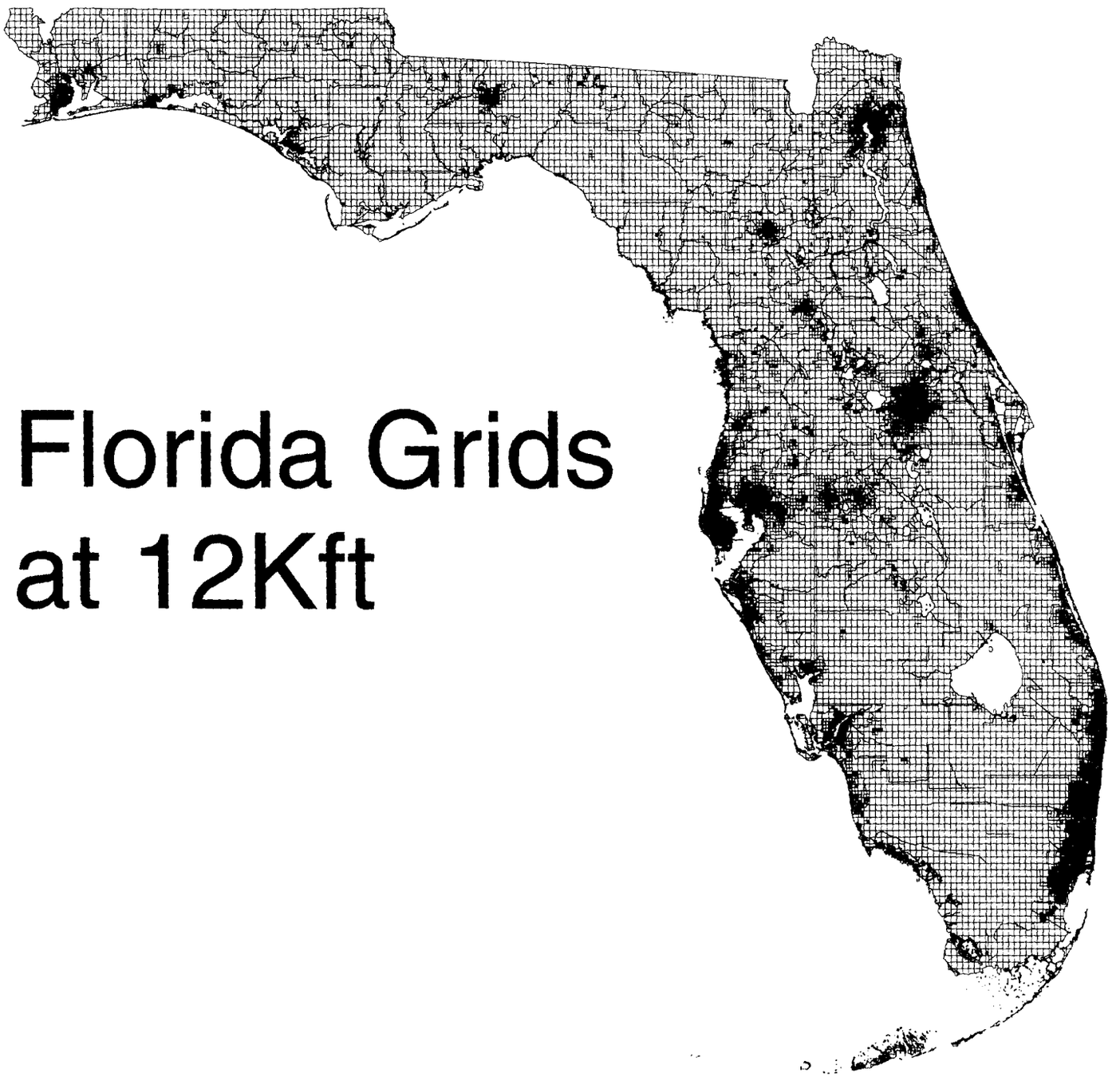
Acknowledgment of date of receipt of this transmittal is requested. A duplicate of this letter is provided for this purpose. Please contact me if you have questions.

Sincerely,

0+3

TAB 3

THE FOLLOWING PAGE REPLACES THE THIRD PAGE



Florida Grids at 12Kft

TAB 5

THE FOLLOWING NINE PAGES REPLACE PAGES 111 AND 112

APPENDIX C

SUMMARY OF MAJOR CHANGES FROM BCPM 1.1 TO BCPM 3.0

I. CUSTOMER LOCATION

Customer Line Data: Housing Units Per Structure

BCPM 1.1--Used a national average based on Census data for number of housing units per structure per Census Block Group (CBG).

BCPM 3.0--Uses census data for housing units per structure at the Census Block (CB) level for each CB.

Customer Line Data: Business

BCPM 1.1--Estimated the number of business lines at the CBG level by using Dunn and Bradstreet data on the number of employees by CBG and industry reports of business lines by state.

BCPM 3.0--Uses PNR and Associates (PNR) data of actual business lines. Approximately 85% of business customers can be assigned to the CB level.

Method For Assigning Customers To Wire Centers

BCPM 1.1 --Assigned customers within a CBG to a wire center if the centroid (geographic center) of the CBG fell within the wire center boundaries provided by On Target's "Exchange Info Plus" data product. Wire Center boundaries were subsequently established by aggregating the area encompassed by CBGs whose centroids were assigned to the respective wire center.

BCPM 3.0—Uses Business Location Research (BLR) data to establish wire center boundaries. These are typically defined at the CB level.

Unit of Engineering

BCPM 1.1--Used the CBG as the unit of engineering. The size of a CBG is based on population and geography.

BCPM 3.0--Simulates basic telephone plant engineering units by using dynamic grids that vary in size within a wire center. The "ultimate grid" is sized to comport with Carrier Serving Area (CSA) and Distribution Area engineering guidelines. Ultimate grids are constructed by first establishing microgrids (approximately 1,500 feet by 1,700 feet, longitude and latitude) and then reaggregating the microgrids into larger grids as appropriate. In general, the maximum grid size allowed is 12,000 feet by 14,000 feet.[1]

Locating customers within the Wire Center

BCPM 1.1—Squared the area of the CBG about the geographic center of the CBG. For CBGs with less than 20 households per square mile, the area of this square was reduced to a square whose area is equal to a 500-foot buffer along each side of the roads within a CBG. For all CBGs, customers were uniformly distributed throughout the squared CBG.

BCPM 3.0—Uses road network data to place customers within a CB into the appropriate microgrids for those CBs that span multiple microgrids. Data regarding housing and business lines is retained at the microgrid level subsequent to determining the ultimate grid size. The ultimate grid is quaded about the road centroid of the ultimate grid, which also corresponds to the Digital Loop Carrier (DLC) site. Customers, assigned to microgrids within particular distribution quadrants, are subsequently placed uniformly in Floating Distribution Areas. These Floating Distribution Areas are centered about the road centroid of the distribution quadrant and sized as a square whose area is equal to the

[1] The size of the macrogrid may be expanded when partial grids along the wire center boundaries are combined with adjacent macrogrids.

area encompassed by a 500-foot road buffer along each side of the roads contained within the distribution quadrant.

II. OUTSIDE PLANT

Design of the Main Feeders

BCPM 1.1—Placed main feeder directly north, south, east and west from the wire center until no longer needed to support a CBG.

BCPM 3.0—Places main feeder directly north, south, east and west from the wire center for 10,000 feet. Beyond this point, the model tests two designs.

The first design directs main feeder to the main population concentration in the feeder quadrant that it serves, using the following rules:

- If the line count in the center 1/3 of the feeder quadrant is greater than 30% of the total feeder quadrant lines, the feeder remains a single feeder and points at the population centroid of the total section.
- If the line count in the center 1/3 of a feeder quadrant is less than 30% of the feeder quadrant lines, the feeder splits into two main feeders each pointed at the population centroid in one half of the feeder quadrant.

The second design continues to extend the feeder directly in the original cardinal direction, i.e. due north, south, east or west. The design that uses the least feeder cable (including feeder, subfeeder, and subfeeder part two) is selected.

Sharing of Subfeeder

BCPM 1.1—Placed subfeeder to each CBG. BCPM 1.1 did not permit sharing of subfeeder among CBGs assigned to the same wire center.

BCPM 3.0—Shares subfeeder among ultimate grids within a wire center when it is cost effective to do so.

Establishing the DLC site

BCPM 1.1—Established the DLC site at the geographic center of the CBG for those CBGs that needed only one DLC site. Multiple DLC sites were established in CBGs that exceeded the 12,000-foot (default) constraint on copper loop length from the DLC to the customer. In such cases, DLC sites were established in locations that ensured that the 12,000-foot constraint on copper loop length from the respective DLC to the customer was not exceeded. (The 12,000-foot constraint was a user adjustable input.)

BCPM 3.0—Establishes the DLC site at the road centroid of the ultimate grid. More than one DLC may be placed at this site if necessary, due to line requirements.

Placement of the Feeder Distribution Interface (FDI)

BCPM 1.1—Always co-located the FDI with the DLC. BCPM 1.1 allowed for placement of more than one FDI, if necessary, due to line requirements, at the DLC site.

BCPM 3.0—Provides for the following three options for placement of the FDI(s) based on line counts: 1) co-locate the FDI with the DLC; 2) share an FDI between Distribution Areas located to the right of the DLC and share an FDI between Distribution Areas located to the left of the DLC; and 3) place an FDI at the center of the Distribution Area, which corresponds to the road centroid of the distribution quadrant, for each non-empty quadrant.

Cable Design from the DLC to the Customer

BCPM 1.1—Placed horizontal distribution cable and from that placed "legs" to remote terminals from which drop cable was placed to the customer.

BCPM 3.0--Places horizontal connecting cable from the DLC site to connect to vertical connecting cable that runs to the geographic center of each Distribution Area. A backbone cable runs vertically through the center of the Distribution Area. Branch cables emanate from the backbone cable, and drop cables run from remote terminals placed along the branch cable.

Loop length

BCPM 1.1--Used a default value of 12,000 feet to constrain the copper loop length from the DLC to the customer. (This was a user adjustable input.)

BCPM 3.0—Tends to limit average copper loop lengths from the DLC to the customer by generally limiting the maximum ultimate grid size to 12,000 feet by 14,000 feet, latitude and longitude. If copper loop lengths from the DLC to the customer exceed 12,000 feet, the cable gauge is reduced to 24 gauge cable and extended range plug-ins are installed on loops extending beyond 13,600 feet. The ultimate grids are designed such that copper loop lengths from the DLC to the customer are unlikely to exceed 18,000 feet.

Model cap on Total Cable Length

BCPM 1.1—Did not provide for a constraint on cable length within the CBG subfeeder and Distribution Areas.

BCPM 3.0—Caps the distribution quadrant total cable length so that it does not exceed the total road distance within the distribution quadrant.

Density Zones

BCPM 1.1--Used seven density zones.

BCPM 3.0--Uses nine density zones to facilitate comparison of BCPM results with the Hatfield Model.

IV. SWITCHING

Differentiating Switch Functions

BCPM 1.1--The switch curve made no distinction between host and remote switches.

BCPM 3.0--Uses separate switch models for host, remote, and stand-alone switches.

Investment Approach

BCPM 1.1--Estimated a single total switch investment.

BCPM 3.0--Calculates switching investments for each of several switch functional investment categories, using a separate curve for each category. In addition, the switch can be partitioned accurately into non-traffic sensitive (Line Port) and traffic sensitive investments.

Determining Universal Service Impact

BCPM 1.1--Provided a single input that allowed the user to specify the percent of the total switch investment that is associated with basic service.

BCPM 3.0—Identifies accurately the portion of investment that supports universal service for each central office by using a separate curve for individual switch functional investment categories.

Usage Related Inputs

BCPM 1.1 Switch curves estimated switch functional investments based only on the number of lines in the office.

BCPM 3.0--Uses a variety of inputs including call rates, usage levels, number of trunks, as well as the number of lines. BCPM 3.0 allows input of usage levels for universal service that can be independent of the usage inputs used to engineer the switch. Usage inputs can be distinguished by residence and business lines if desired. Most data items can be input on a state-specific and/or wire-center specific basis with a "fallback" feature that allows the Model to use the state-level inputs in those cases where wire-center inputs are not available.

Switch Type

BCPM 1.1—Was based on a sample of switch investments that included DMS-100 and 5ESS switches. The single switch curve, however, made no distinction between the two switches.

BCPM 3.0--Is also based on the 5ESS and DMS-100, and additionally, allows the user to specify a switch vendor, if that information is available.

Input Values

BCPM 1.1--Used responses to a data request sent to the LECs. This data request asked for discounted unit investments produced by SCIS runs. The resulting model, in essence, produced an average discount level for the companies polled.

BCPM 3.0--Is based on a similar data set produced by the BCPM sponsor companies (BellSouth, Sprint, U S West). The sponsor companies provided non-discounted switch investments for use in the switch curve. The investments are produced with SCIS runs, except for the U S West investments, which are produced using the Switching Cost Model (SCM).

Method to Estimate Investment

BCPM 1.1--Used a single means, the switch curve, for estimating wire center switch investments.

BCPM 3.0--Can use several sources of investments to determine USF costs: the switch regression curve, direct input from an ALSM, or total switch investments from any other source. BCPM 3.0 partitions the investments from other sources by functional investment category, producing accurate estimates of universal service investments by switch.

Limiting Switch Size

BCPM 1.1--Did not have an algorithm to limit switch sizes. That caused simple switch curve models to create "switches" with unreasonably large amounts of lines or usage.

BCPM 3.0--Has the capability to scan the input table to determine whether the capacity constraints for any given wire center have been exceeded. For example, if a wire center has more than a user-defined number of lines, the Model automatically inserts a new CLLI and a new switch entity.

V. TRANSPORT

Approach to Interoffice Costs

BCPM 1.1--Transport was calculated as approximately 3% of switching investment.

BCPM 3.0--Creates a realistic model of the interoffice network based on the actual homing relationships between remotes and hosts, and hosts and tandems. It develops specific and accurate cost elements for efficient SONET bandwidth based on trunking configurations of specific nodes on the network.

Transport Redundancy

BCPM 1.1--Did not consider transport redundancy.

BCPM 3.0--Provides one level of redundancy via what is commonly referred to as "self-healing" rings.[2] Provides a second level of redundancy by using two sets of lines for offices served by a folded ring.[3] Includes a third level of redundancy by providing one extra DS1 for every seven working DS1s on the port side in a central office.

Level of Analysis for Transport

BCPM 1.1--Did not provide an analysis of Transport costs.

BCPM 3.0--Allows the user to run the model for a single ring, thereby enabling the user to trace the cost calculations through the logic of the Model.

Reports on Transport

BCPM 1.1--Did not provide reports on transport.

BCPM 3.0--Provides reports for each ring. Includes transport cost results for all of the rings, transport configuration of all of the rings, and universal service transport cost on a per line basis.

VI. SIGNALING COSTS

Approach to Signaling Costs

BCPM 1.1-- Contained no explicit provision for signaling costs. The only costs associated with signaling are those included in the switching investment.

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[2] If the fiber cable in a "self healing" ring is cut, the signals will automatically reverse their direction on the ring.

[3] A folded ring connects a small office to a single node on the SONET ring.

BCPM 3.0--Calculates signaling costs through an input table that includes per line investment. Investment figures are provided for residence and business lines in large, medium, and small companies. Investment amounts are calculated by using the Signaling Cost Proxy Model (SCPM) which:

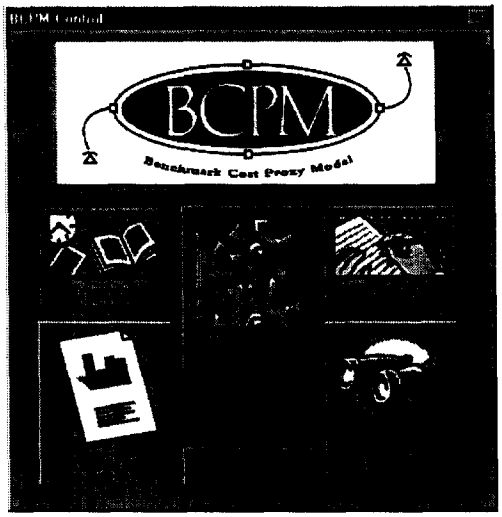
- Creates a two tiered SS7 Signaling network using a combination of user definable inputs and LERG data;
- Uses the existing SS7 signaling network as the basis for the SCPM network;
- Uses actual data to develop the octet, millisecond and data dip needs of the network as the foundation elements to determine signaling investment; and
- Builds and costs the proper number of packet switches, on line data bases and signaling links by analyzing the octet, millisecond and data dip needs of the network.

The user can accept the default value or input the per line values. SCPM is available from the BCPM Web Site for the user to develop per line investments using their own cost data.

TAB 6

THE FOLLOWING THIRTEEN PAGES REPLACE PAGES 3 THROUGH 13

By clicking on the **START** button, you will open the main menu of the model shown below:



There are six buttons on the main menu screen: **EDIT VIEWS, INPUTS, PROCESS, REPORTS, REVIEW**, and **QUIT**.

The **EDIT VIEWS** button allows you to select the program modules and data sets used when the model is processed. You can select from the configurations or Views provided, or create a custom View. You also select the states for which you would like results.

The **INPUTS** button allows you to view and modify the global and state-specific data inputs.

The **PROCESS** button allows you to select which modules you would like to process (Loop, Transport, Switching, Signaling and Capcost). It also allows you to confirm the states and View you have selected.

The **REPORTS** button allows you to set report parameters and formats and generate reports.

The **REVIEW** button allows you to examine the calculations performed under the View you have selected or created.

The **QUIT** button returns you to the BCPM **START** screen. Select File, Exit from the Excel menu to end your session.

Edit Views

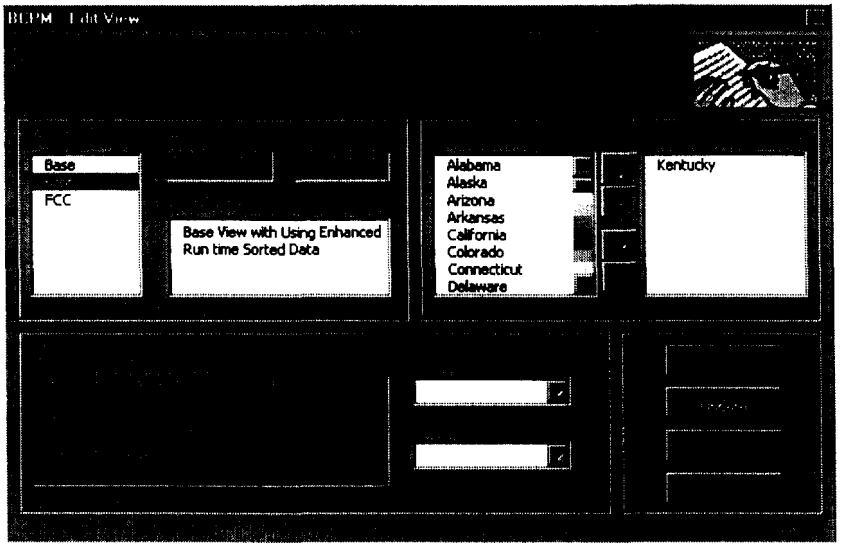
By allowing for various configurations or Views, BCPM allows the user to control the modules and data sets processed by the model. The user can create a custom View or use one of the default Views provided. The default Views are described below:

- BCPM View – BCPM sponsors'[1] default view
- BCPM 18K View – BCPM sponsors' default view incorporating FCC specification for 18K grids
- FCC View - BCPM sponsors' view for FCC depreciation lives and cost of money

[1] BCPM sponsors include BellSouth, Sprint, and US WEST.

- FCC 18K View – BCPM sponsors' view with FCC depreciation lives, cost of money and 18K grid specification

By selecting the **EDIT VIEWS** button from the main dialog box, you can see the module and data sets associated with each of the default Views, as shown below:



The four sections of the **EDIT VIEWS** window are described below:

Selecting Views

The top left window allows you to select a View to process. When you select a View, the date it was created and a description are displayed.

Selecting States

The states that could be processed and those selected are shown in the top right window. You can select a state by highlighting the state name and clicking the ">" button. To ensure all states are available under a particular view, select the ">>" button. To remove one or all of the states from the selected list, use the opposing arrow(s) buttons. Any combination of states can be associated with a particular view.

Modifying View Module or Data Sets

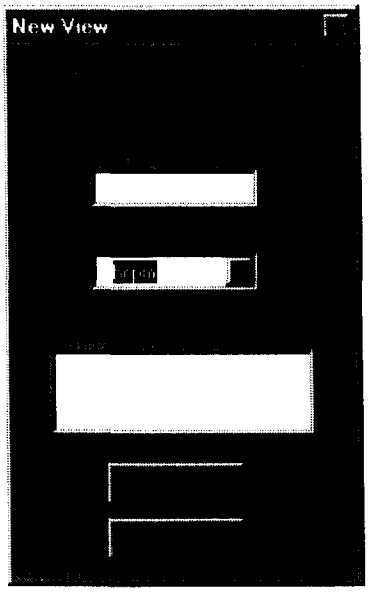
The bottom left window includes the existing setup of the View in table form. To change the module file or data set used, highlight the appropriate module and select the replacement module or data set from the corresponding drop down menus.

Modifying View Files

You can Delete a view, modify an existing view (Update), create a New view or Close in the dialog box in the bottom right window.

If you would like to edit data inputs, make sensitivity runs, or modify modules, it is recommended that you create a new View rather than modify an existing file.

When you click on the New button, you are presented with the following dialog box:

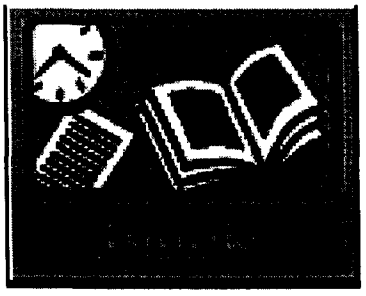


The New View dialog box asks you for a name, the existing view you wish to copy from, and a text description of the view you are creating. After you enter the information, click on the **OK** button and the system will create a new View. Then, you can select it from the View window as described above and modify the module set, data set, or states available for processing, as necessary. When you have completed your modifications, select Update to save your changes under the new View file name.

Once you have created a new View you can then modify inputs.

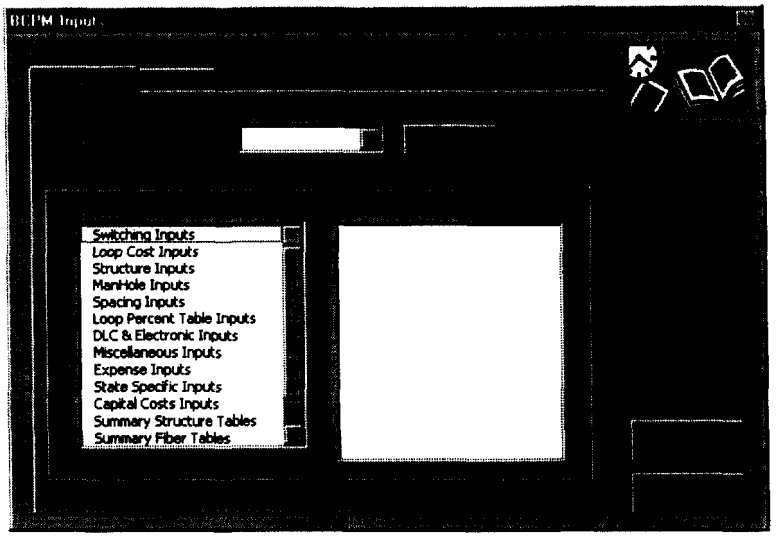
Changing Inputs

To change inputs, click on the **INPUTS** button in the main dialog box.

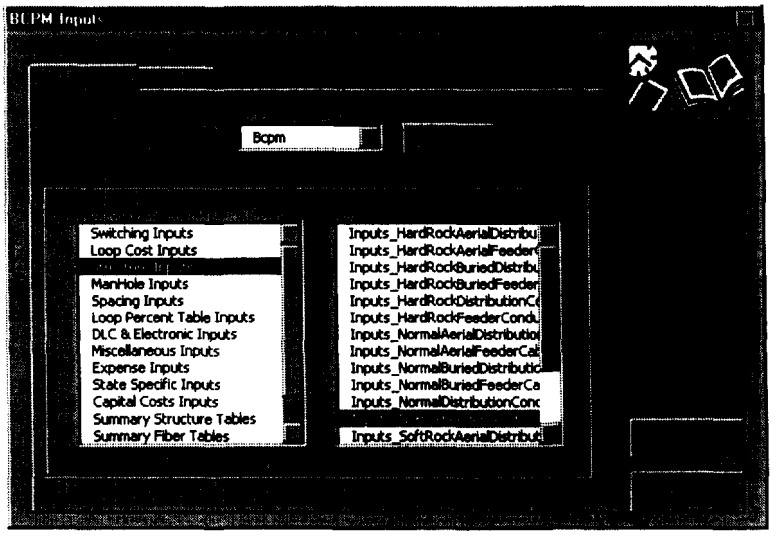


Manual Inputs

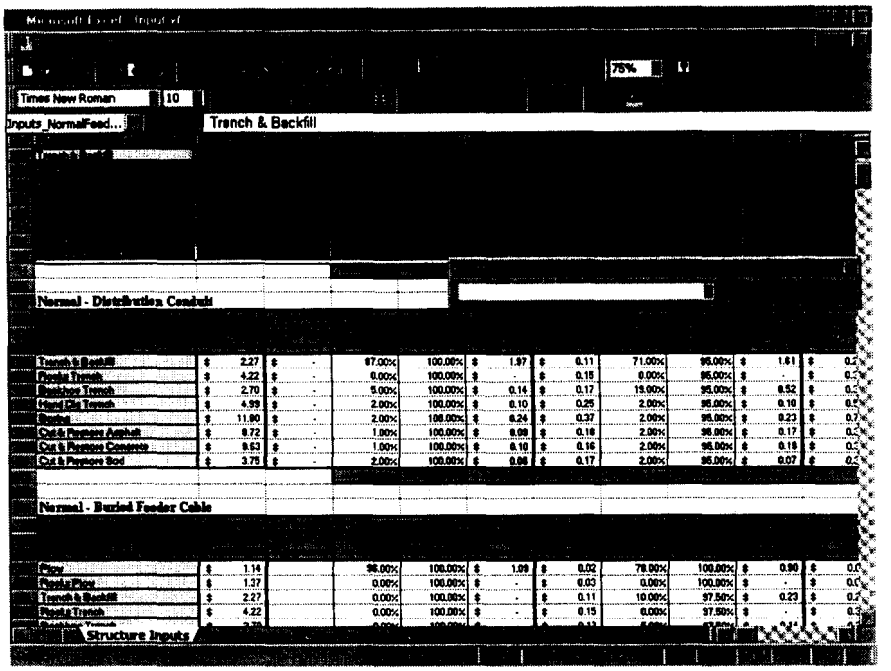
When you click on the **INPUTS** button you will see the Inputs Dialog Window. Click on the Manual Inputs tab on the top of the window. You will then see the Manual Inputs Dialog Window.



First, select the view that you want to edit. Then, in the worksheet box, highlight the type of inputs you would like to modify. A list of the input tables will appear. Select the specific inputs you wish to edit. Below is the screen that would appear if you chose to change the inputs relating to normal aerial cable in the BCPM View:



After highlighting the input you wish to change, click on the OK button. The system will run for approximately 30 seconds while it populates the worksheet and displays the appropriate table for editing (shown below).



SPECIAL NOTES

- It is important to notice the toolbar that BCPM 3.0 provides during editing.

- The BCPM Input toolbar allows you to **SAVE**, **PRINT**, **COPY**, **PASTE VALUES** and **Close**.
- Once you have made your data input changes, click on the **SAVE** button on the BCPM bar. **IF YOU DO NOT USE THIS TOOLBAR TO SAVE YOUR CHANGES THEY WILL NOT BE PROPERLY SAVED IN THE PROGRAM FILES.** Do not use the Microsoft Excel toolbar to save your file.
- Only change the items highlighted in blue. The model calculates the numbers in black.
- You may change other inputs in the Excel Workbook that you have opened without going back to the **INPUTS** dialog box. Click on the appropriate tab and scroll to the table you would like to change. Save your modifications using the BCPM Input toolbar. To end your editing session, click **CLOSE** on the BCPM Input toolbar; you will be prompted to save your work as you exit. Once you leave the **INPUTS** screen, click on the Cancel button to return to the main dialog box.
- Do not change the values in the summary tabs at the bottom of the worksheet. The summary tables are calculated by the model and are for viewing purposes only.

File Inputs

The File Inputs tab allows you to create state-specific data input files for line counts and switch investments by wire center. By creating these files, you can override the line counts and switching investments developed by BCPM. They will be used in model calculations regardless of the View that is selected.

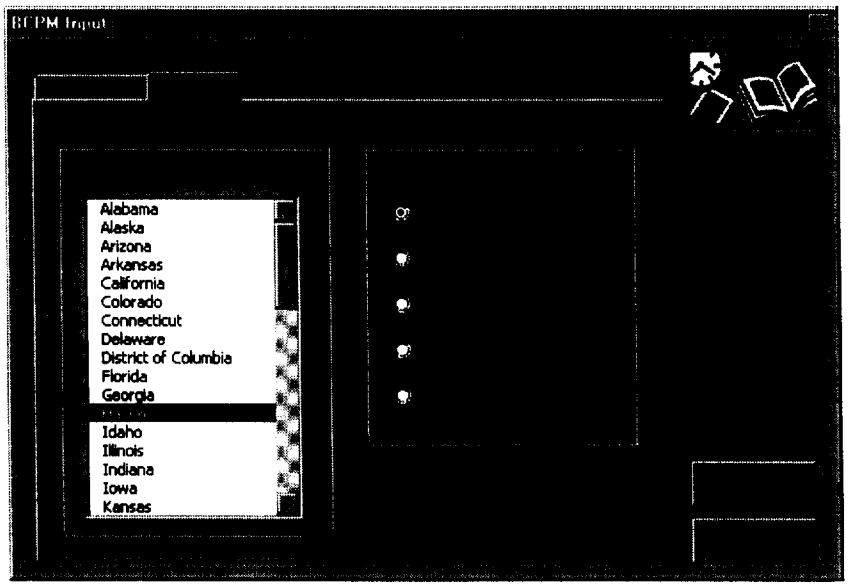
The data input files that you can populate are listed below:

FCC Lines	Includes line counts by wire center in a format matching FCC data requirements. BCPM will adjust grid line estimates at the wire center level to reflect the line counts entered.
FCC Switching File	Worksheet designed to incorporate FCC Switching investments by wire center.
ALSM	Worksheet formatted to allow ALSM (Audited LEC Switching Model) switching investments to be entered by wire center.
SCM	Worksheet formatted to allow SCM (Switching Cost Model) switching investments to be entered by wire center.
Switching User Data	Worksheet designed to allow switching investments from models not listed to be incorporated.

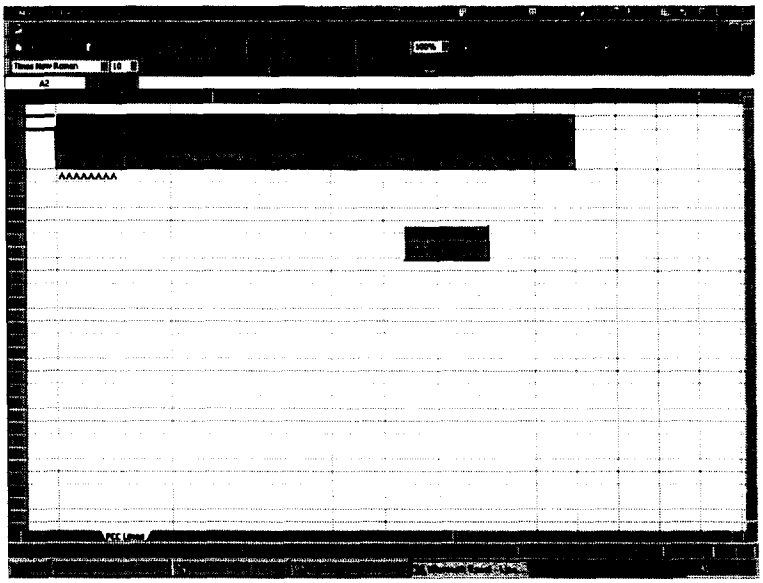
Changing File Inputs - FCC Lines

Below is the screen that is displayed when you click on the File Inputs tab:

To create or change a file, select a state and the type of file you wish to create. BCPM will open



the appropriate worksheet and you can enter the data inputs. The worksheet used for FCC Lines is shown below:



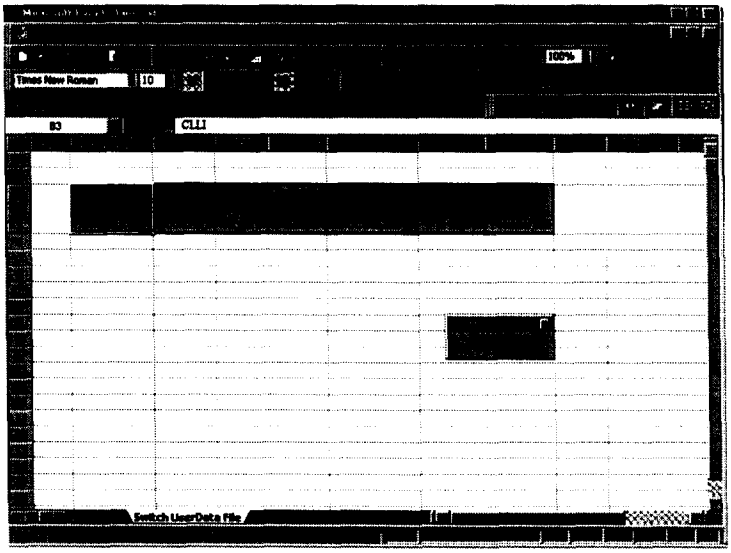
Enter the 8 digit code (not the 11 digit code) for the wire center and the actual lines counts for each column. Use the BCPM toolbar to save your entries.

SPECIAL NOTE

Regardless of the View selected, whenever the FCC Lines file is populated, line estimates will be adjusted at a wire center level to reflect the data entered.

Changing File Inputs - Switching Investments

Below the screen that will appear if you chose to create an alternate file for switching investments:



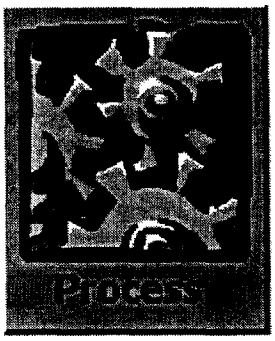
Once you have entered the switching investments by CLLI code, use the BCPM toolbar to save the file. Now, you can produce results by running the model.

PROCESSING THE MODULES

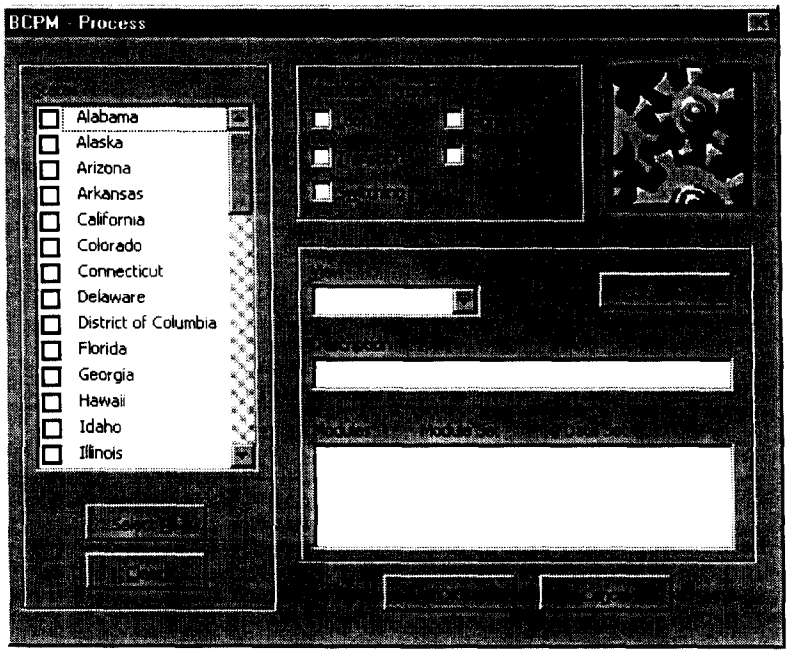
The **PROCESS** step combines user specific inputs with grid data and BCPM logic to create proxy investment levels.

Note: The BCPM has been processed under the BCPM View before you received it. It is not necessary to process again to generate reports for the BCPM View. Select REPORTS to review the results calculated.

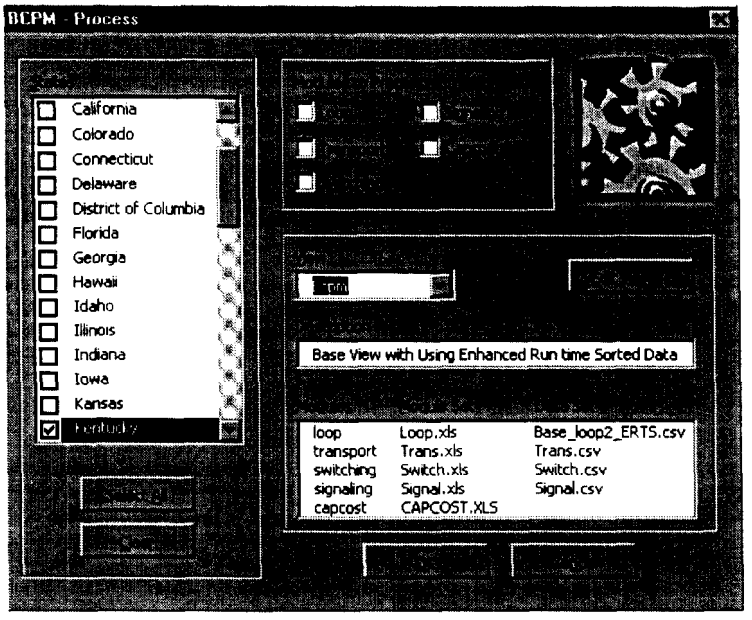
To run the model under a different view or with new user inputs, click the **PROCESS** button on the main dialog box (shown below).



The following dialog box will appear:



Select the appropriate View from the drop down menu to populate the **PROCESS** dialog box as shown below:



The View selection will automatically display the states that were associated with that particular view. Select the states you would like to process by clicking on the appropriate check boxes.

The Loop, Transport, and Switching Modules produce network investments. (Signaling investments are incorporated in the Reports Module; a separate module is not yet available.) The Capcost Module develops annual cost factors which are applied to investment in the Reports Module to determine depreciation, cost of money, and taxes. Select the modules you would like to process by selecting the associated check boxes.

After you have selected the states and modules to process, click on the **OK** button. The system will produce results in between 20 minutes to a few hours depending on your hardware setup.

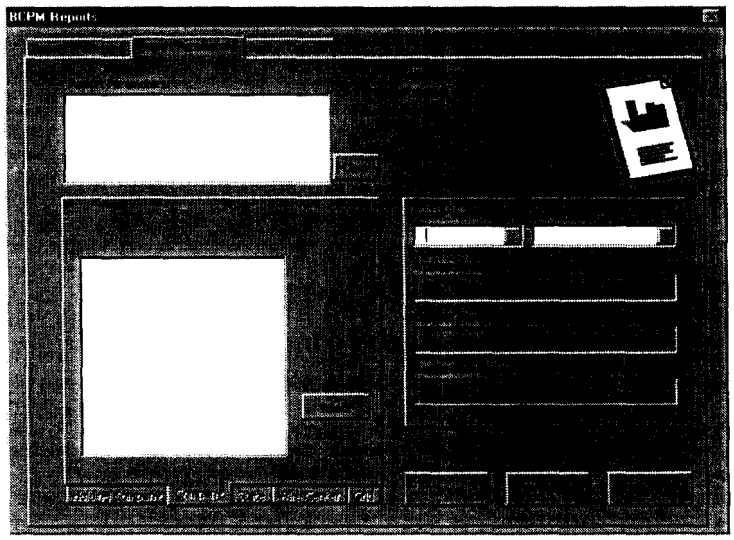
Once this step is complete, you can generate reports.

Reports

In the Reports Module, Signaling investments are added to the investments developed by the Loop, Switching and Transport Modules. To develop the associated monthly costs, the annual cost factors from the Capcost Module are applied and expenses are calculated.

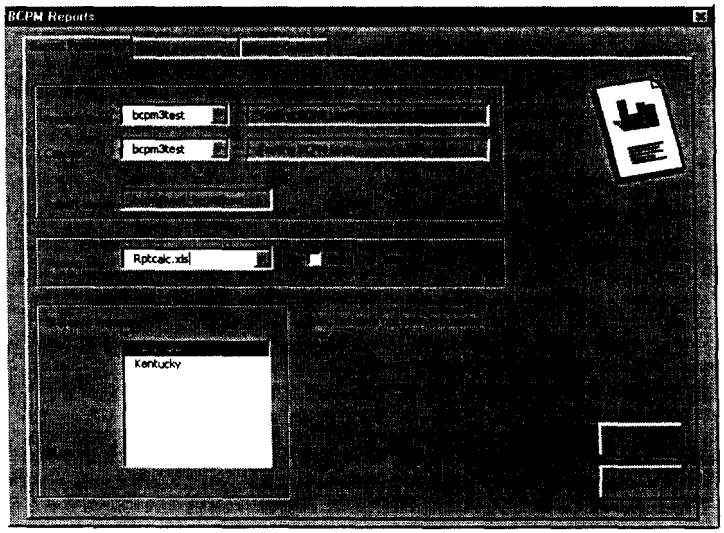
By selecting the **REPORTS** button from the main dialog box, you can chose reports to process, set report parameters, and select report formats.

The Reports dialog box that is displayed includes three tabs as shown below:



Report Processing

First, click on the Report Processing tab to select the View, Capcost Module and Report Module you want to use to calculate monthly costs. The Report Processing tab appears below:



After you select a View, a list of states that have been processed for this View appears. States that have been selected for the View but not yet processed are also indicated. Select the states you would like results for and click the OK button to perform the report calculations. The system will process for approximately 15 – 30 minutes, depending on your computer hardware.

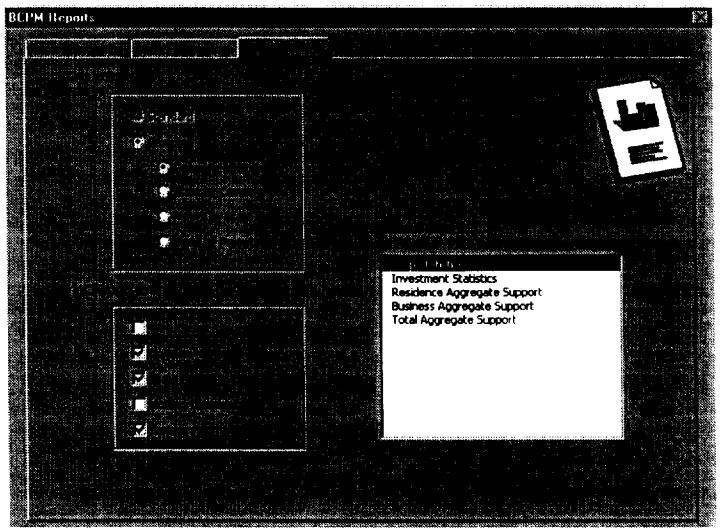
SPECIAL NOTE

You can not produce reports for a state unless the Loop, Transport, Switching, and Capcost Modules have been processed for the selected View under **PROCESS**. When you receive BCPM, the modules will have been processed for the BCPM View so that reports can be viewed or printed immediately. For new or other existing Views, you must follow the instructions under **PROCESS** before you generate reports.

The only states that will appear in the state selection box are those that are currently associated with the View displayed. If you would like to process reports for a state not listed, select cancel, **EDIT VIEWS**, and add the state under Selection for the View you are using. Then **PROCESS** the state before returning to **REPORTS**.

Report Options

Under the Report Options tab, you can indicate the report formats that you would like to view and print under Report Parameters.



You can select the standard grouping of results or customize how the results appear. You can sort results by company by state, by state by company, by parent company by state, or by state by parent company under the Grouping selection.

For Summary and WC_Summary reports, you can select how the report is populated by clicking on the appropriate grouping selection.

You can indicate the reporting level that you prefer under Print Report Every. This determines how many reports will be printed. For example, if the user selects wire center, a report will be printed for every wire center in the state.

The Available Reports section determines which reports will automatically be printed.
After you have selected the summary report options, click on the Report Parameters tab to preview and/or print reports.